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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/386,906	08/31/1999	ZHONGYI XIA	3851US(98-11	1930

7590 10/22/2004

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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/386,906

Applicant(s)

XIA, ZHONGYI

Examiner

LUONG T NGUYEN

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 28-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/31/1999 and 09/02/2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-27 in the reply filed on 8/03/04 is acknowledged.
2. Claims 28-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/03/04.

Drawings

3. The drawings are objected to because of the informalities addressed in form PTO 948.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the

Art Unit: 2612

drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

In the specification, on page 10 (Line 1), discloses “dielectric component 50”, however, figure 1 does not show “dielectric component 50”.

On page 14 (Line 6), “scan circuit 64” should be changed to --scan circuit 62--.

On page 15 (Line 19), “U.S. application Serial No. 09/_____” should be filled in the Serial Number.

Appropriate correction is required.

Claim Objections

5. Claims 1-27 are objected to because of the following informalities:

Claim 1 (Line 10), “said second side” should be changed to --said second side of said capacitor--.

Claim 1 (Line 11), “said signal transistor” should be changed to --said signal transmission transistor--.

Claim 13 (Line 4), “said array on” should be changed to --said array of--.

Claim 15 (Line 1), “said image detector” should be changed to --said image signal detector--.

Art Unit: 2612

Claim 17 (Line 2), "selected n-wells" should be changed to --selected n-well--.

Claims 2-12 are objected as being dependent on claim 1.

Claims 14-27 are objected as being dependent on claim 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 6, 13-15, 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Hush (US 5,945,968).

The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Hush discloses a video imaging system, comprising a field emission array (display device 40, Figures 1, 2, Column 3, Lines 32-35, 54-65) including a p-type

Art Unit: 2612

substrate comprising an image detection surface (Figures 4A-4B, p-type substrate 80, Column 7, Lines 30-60); an n-well recessed in said p-type substrate (Figures 4A-4B, n-well recessed in substrate 80); a diffusion region between said p-type substrate and said n-well (Figures 4A-4B); at least one emitter tip disposed in communication with said n-well (emitter 46, Figures 4A-4B); a capacitor a first side of which is in communication with said n-well (capacitor 70, Figure 2); a baseline potential transistor (transistor 68, Figure 2) in communication with a second side of said capacitor; and a signal transmission transistor (transistor 66, Figure 2) in communication with said second side; an image signal detector (cathodoluminescent layer 56, Figure 2, Column 4, Lines 20-28) associated with said signal transistor; and an extraction grid (extraction grid 48, Figures 1-2, Column 3, Lines 54-65) disposed over said field emission array and including at least one aperture therethrough located substantially over said at least one emitter tip.

Regarding claim 2, Hush discloses a cathodo-luminescent display disposed substantially parallel to and spaced apart from said extraction grid and including at least one display pixel corresponding to said at least one emitter tip (cathodoluminescent layer 56, Figures 1-2, Column 4, Lines 20-28).

Regarding claims 3, 14, Hush discloses wherein said baseline potential transistor and said signal transmission transistor share a common drain (common drain node 69, Figure 2).

Art Unit: 2612

Regarding claims 6, 15, Hush discloses said image signal detector is in communication with a source node of said signal transmission transistor (Figure 2, layer 56 is in communication with source of transistor 66 via emitter 46).

As for claim 13, all the limitations are contained in claim 1, therefore, see Examiner's comment regarding claim 1.

Regarding claim 21, Hush discloses a display (combination of elements 52, 54, 56, Figure 2).

Regarding claim 22, Hush discloses an array of display pixels, each display pixel of which corresponds substantially to at least one emission pixel of said array of emission pixels (inherently disclosed in plate 52, Figure 2).

Regarding claim 23, Hush discloses a cathodo-luminescent display (cathodoluminescent layer 56, Figure 2).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2612

9. Claims 4-5, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hush (5,945,968) in view of Parker (US 5,889,313).

Regarding claims 4, 19, Hush fails to disclose a distance between said image detection surface and said n-well facilitates detection of electromagnetic radiation of a near infrared wavelength. However, Parker teaches a radiation detector, in which the small substrate thickness promotes rapid detection of the radiation (See Abstract, Column 3, Lines 53-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Hush by the teaching Parker in order to enable rapid detection of the incoming radiation (Column 3, Lines 58-61).

Regarding claims 5, 20, Hush fails to disclose a distance between said image detection surface and said n-well facilitates detection of electromagnetic radiation of a visible wavelength. However, Parker teaches a radiation detector, in which the small substrate thickness promotes rapid detection of the radiation (See Abstract, Column 3, Lines 53-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Hush by the teaching Parker in order to enable rapid detection of the incoming radiation (Column 3, Lines 58-61).

10. Claims 7-12, 16-18, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hush (5,945,968) in view of Hush et al. (US 6,441,542).

Regarding claims 7, 16, Hush ('968) fails to disclose a shutter component. However, Hush et al. ('542) teaches a cathode emitter device, which includes a light-blocking material 200

Art Unit: 2612

to prevent light from reaching diode 120 (Figure 3, Column 5, Lines 4-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Hush ('968) by the teaching Hush et al. ('542) in order to prevent light from reaching diode (Column 5, Lines 5-8).

Regarding claims 8, 17, Hush et al. ('542) discloses said shutter component is configured to prevent electromagnetic radiation from impinging said n-well (Figure 2).

Regarding claim 9, Hush ('968) discloses said diffusion region is located proximate to said image detection surface (Figures 4A-4B). Hush ('968) fail to disclose a layer of detection enhancement material adjacent said image detection surface. However, Hush et al. ('542) teaches a cathode emitter device, which includes a platinum silicide layer 14 for detecting and/or imaging radiation (Figure 1, Column 3, Lines 19-24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Hush ('968) by the teaching Hush et al. ('542) in order to obtain a device, which can be utilized for detecting and/or imaging radiation that could not be detected with p-type silicon alone (Column 3, Lines 59-65).

Regarding claims 10, 25, Hush et al. ('542) discloses said detection enhancement material comprises a platinum silicide (platinum silicide layer 14, Figure 1, Column 3, Lines 19-24).

Art Unit: 2612

Regarding claims 11, 26, Hush ('968) fail to disclose said p-type substrate and said n-well each comprise a detection enhancement material. However, Hush et al. ('542) teaches a cathode emitter device, which includes an Hg-Cd-Te layer 14 comprises p-type portion 16 and n-type portion 18 for detecting and/or imaging radiation (Figure 1, Column 3, Lines 1-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Hush ('968) by the teaching Hush et al. ('542) in order to obtain a device, which can be utilized for detecting and/or imaging radiation that could not be detected with p-type silicon alone (Column 3, Lines 59-65).

Regarding claims 12, 27, Hush et al. ('542) discloses said detection enhancement material comprises a mercury-cadmium-tellurium alloy (Hg-Cd-Te layer 14, Figure 1, Column 3, Lines 1-18).

Regarding claim 18, Hush et al. ('542) discloses said shutter is positionable over a selected region of said image detection surface (Figure 3, light blocking 200).

Regarding claim 24, Hush ('968) discloses said p-n junction is located proximate to said image detection surface (Figures 4A-4B). Hush ('968) fail to disclose a layer of detection enhancement material adjacent said image detection surface. However, Hush et al. ('542) teaches a cathode emitter device, which includes a platinum silicide layer 14 for detecting and/or imaging radiation (Figure 1, Column 3, Lines 19-24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

Art Unit: 2612

device in Hush ('968) by the teaching Hush et al. ('542) in order to obtain a device, which can be utilized for detecting and/or imaging radiation that could not be detected with p-type silicon alone (Column 3, Lines 59-65).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goodwin (US 5,751,049) discloses two-color infrared detector.

Lucero et al. (US 5,847,407) discloses charge dissipation field emission device.

Hush (US 5,909,200) discloses temperature compensated matrix addressable display.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T NGUYEN whose telephone number is (703) 308-9297. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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10/17/04

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